

## ABSTRACT

A multi-wavelength light source unit for optical communication system is disclosed. The light source includes a demultiplexer for demultiplexing a multiplexed light signal into a plurality of lights having different wavelengths and a multiplexer that receives the demultiplexed lights and multiplexes the demultiplexed lights into the multiplexed light signal. Input ports of the multiplexer are respectively port-to-port connectable to each one of a plurality of output ports of the demultiplexer. The light source unit includes a plurality of semiconductor optical amplifiers amplifying the demultiplexed lights output from the demultiplexer, and a plurality of beam splitters for splitting the amplified demultiplexed lights into two parts, so as to provide the respective input ports of the multiplexer with a split part of the lights, while to transmit the other part of the lights out of the beam splitters.